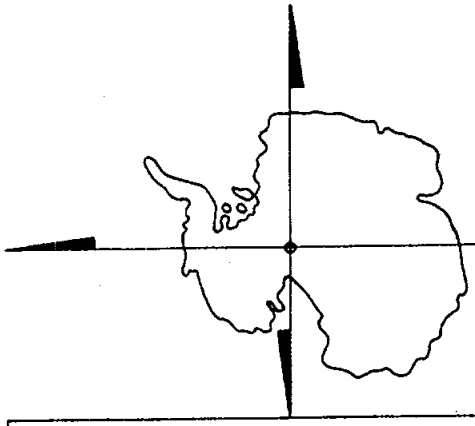

Antarctic Meteorite NEWSLETTER

A periodical issued by the Antarctic Meteorite Working Group to inform scientists of the basic characteristics of specimens recovered in the Antarctic.

Volume 10, Number 2 August, 1987

Supported by the National Science Foundation, Division of Polar Programs, and compiled at Code SN2, Johnson Space Center, NASA, Houston, Texas 77058

!!!!!!!! SAMPLE REQUEST DEADLINE: OCTOBER 2, 1987 (SEE PAGE 2) !!!!!!!!

SAMPLE-REQUEST GUIDELINES

All sample requests should be made in writing to

Secretary, MWG
SN2/Planetary Materials Branch
NASA/Johnson Space Center
Houston, TX 77058 USA.

Requests that are received by the MWG Secretary before October 2, 1987 will be reviewed at the MWG meeting of October 15-17, 1987 to be held in Washington, DC. Requests that are received after the October 2 deadline may possibly be delayed for review until the MWG meets again in the spring of 1988. PLEASE SUBMIT YOUR REQUESTS ON TIME. Questions pertaining to sample requests can be directed in writing to the above address or can be directed by telephone to (713) 483-3274.

Requests for samples are welcomed from research scientists of all countries, regardless of their current state of funding for meteorite studies. All sample requests will be reviewed by the Meteorite Working Group (MWG), a peer-review committee that guides the collection, curation, allocation, and distribution of the U. S. Antarctic meteorites. Issuance of samples does not imply a commitment by any agency to fund the proposed research. Requests for financial support must be submitted separately to the appropriate funding agencies. As a matter of policy, U. S. Antarctic meteorites are the property of the National Science Foundation and all allocations are subject to recall.

Each request should refer to meteorite samples by their respective identification numbers and should provide detailed scientific justification for the proposed research. Specific requirements for samples, such as sizes or weights, particular locations (if applicable) within individual specimens, or special handling or shipping procedures should be explained in each request. All necessary information should probably be condensable into a one- or two-page letter, although informative attachments (reprints of publications that explain rationale, flow diagrams for analyses, etc.) are welcome.

Samples can be requested from any meteorite that has been made available through anouncement in any issue of the Antarctic Meteorite Newsletter (beginning with 1(1) in June, 1978). Many of the meteorites have also been described in the following catalogs:

Marvin, U. B. and B. Mason (eds.) (1984) Field and Laboratory Investigations of Meteorites from Victoria Land, Antarctica, Smithsonian Contr. Earth Sci. No. 26, Smithsonian Institution Press, 134 pp.

Marvin, U. B. and B. Mason (eds.) (1982) Catalog of Meteorites from Victoria Land, Antarctica, 1978-1980, Smithsonian Contr. Earth Sci. No. 24, Smithsonian Institution Press, 97 pp.

Marvin, U. B. and B. Mason (eds.) (1980) Catalog of Antarctic Meteorites, 1977-1978, Smithsonian Contr. Earth Sci. No. 23, Smithsonian Institution Press, 50 pp.

METEORITE NOTES

Streamlined Classifications

This issue of the newsletter contains a larger number of meteorite classifications than usual. Credit is due to Brian Mason who streamlined his classification of ordinary chondrites. Refractive indices of Type 6 chondrite chips were used to differentiate equilibrated chondrites and circumvent the bottleneck of making thin sections. This newsletter reports the first classifications of meteorites from the 1986 field season and completes the classifications of the 1983 field season. Classifications of many 1984 and 1985 specimens are also reported.

Meteorite Location Maps Available

The Antarctic Meteorite Location and Mapping Project (AMLAMP) announces the availability of a set of meteorite location maps for several Antarctic icefields. The maps display local geographic features such as ice/firn boundaries, moraine boundaries, and escarpments as well as meteorite and survey station locations. The icefields covered by the maps, map scales, and number of sheets per map are shown below.

Icefield	Scale	Sheets
Allan Hills Near Western	1:12500	1
Allan Hills Middle Western	1:25000	1
Allan Hills Far Western	1:25000	2
Elephant Moraine	1:12500	1

The goal of AMLAMP is to compile and maintain a database on the Antarctic meteorites and to produce maps of their location. The database information is obtained from the Meteorite Working Group and is current through the 1985-86 collection season. Existing maps will be updated periodically as additional information is aquired and new maps will be added to the set as information from other icefields is received.

This map set can be ordered from the address below. Please include $5.00 ($8.00 outside USA) for each map set ordered to cover postage and handling charges.

AMLAMP
Lunar and Planetary Institute
3303 NASA Road 1
Houston, Texas 77058-4399

NEW METEORITES FROM 1983-1986 COLLECTIONS

Pages 6-33 contain preliminary descriptions and classifications of meteorites that were completed since publication of issue 10(1) (February, 1987). Some large (>150g) specimens (regardless of petrologic type) and all "pebble"- sized (<150g) specimens of special petrologic type (carbonaceous chondrite, unequilibrated ordinary chondrite, achondrite, etc.) are represented by separate descriptions. However, some specimens of non-special petrologic type are listed only as single line entries in Table 1. For convenience, new specimens are also recast by petrologic type in Table 2.

Macroscopic descriptions of stony meteorites were performed at NASA/JSC. These descriptions summarize hand-specimen features observed during initial examination. Classification is based on microscopic petrography and reconnaissance-level electron micro-probe analyses using polished sections prepared from a small chip of each meteorite. For each stony meteorite the sample number assigned to the preliminary examination section is included. In some cases, however, a single microscopic description was based on thin sections of several specimens believed to be members of a single fall.

Meteorite descriptions contained in this issue were contributed by the following individuals:

Roberta Score, Rene Martinez, Cecilia Satterwhite,
and Carol Schwarz
Planetary Materials Laboratory
NASA/Johnson Space Center
Lockheed
Houston, Texas

Brian H. Mason and Roy Clark
Department of Mineral Sciences
U. S. National Museum of Natural History
Smithsonian Institution
Washington, DC

Antarctic Meteorite Locations

ALH - Allan Hills
BOW - Bowden Neve
BTN - Bates Nunatak
DOM - Dominion Range
DRP - Derrick Peak
EET - Elephant Moraine
GEO - Geologist Range
GRO - Grosvenor Mountains
ILD - Inland Forts
LEW - Lewis Cliff
MBR - Mount Baldr
MET - Meteorite Hills
MIL - Miller Range
OTT - Outpost Nunatak
QUE - Queen Alexandra Range
PCA - Pecora Escarpment
PGP - Purgatory Peak
RKP - Reckling Peak
TIL - Thiel Mountains
TYR - Taylor Glacier

** NOTES TO TABLES 1 and 2:

"Weathering" categories:

A: Minor rustiness; rust haloes on metal particles and rust stains along fractures are minor.
B: Moderate rustiness; large rust haloes occur on metal particles and rust stains on internal fractures are extensive.
C: Severe rustiness; metal particles have been mostly stained by rust throughout.

"Fracturing" categories:

A: Minor cracks; few or no cracks are conspicuous to the naked eye and no cracks penetrate the entire specimen.
B: Moderate cracks; several cracks extend across exterior surfaces and the specimen can be readily broken along the cracks.
c: Severe cracks; specimen readily crumbles along cracks that are both extensive and abundant.

Table 1.

List of Newly Classified Antarctic Meteorites **

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
ALH 83017	0.6	L-3 CHONDRITE		A	0.8-28	4-20
ALH 83018	3.7	E-6 CHONDRITE	B/C	A		0
ALH 83019	2.6	H-4 CHONDRITE	B/C	A	17-21	11-22
ALH 83020	2.9	H-5 CHONDRITE	B	B	18	16
ALH 83021 ~	42.4	L-6 CHONDRITE	B	A		
ALH 83022 ~	5.4	LL-6 CHONDRITE	B	A		
ALH 83023	4.2	L-4 CHONDRITE	B	A	23	20
ALH 83024	6.2	H-6 CHONDRITE	B/C	A	17	15
ALH 83025	77.8	H-5 CHONDRITE	C	B	17	15
ALH 83026	0.1	CARBONACEOUS C3O	B	A	.3-18	.7-12
ALH 83027 ~	2.7	L-6 CHONDRITE	B	A		
ALH 83028 ~	16.0	H-6 CHONDRITE	B	A		
ALH 83029	96.2	H-5 CHONDRITE	B/C	A	19	16
ALH 83030	48.7	H-5 CHONDRITE	B/C	B/C	18	16
ALH 83031	10.4	H-5 CHONDRITE	B	A	19	16
ALH 83032 ~	2.9	LL-6 CHONDRITE	B	A		
ALH 83033	20.7	L-6 CHONDRITE	B/C	B	23	20
ALH 83034	6.5	H-5 CHONDRITE	B	B	18	16
ALH 83035	1.2	H-5 CHONDRITE	B	A	18	16
ALH 83036	24.3	H-5 CHONDRITE	A	A/B	17	15
ALH 83037	2.5	H-5 CHONDRITE	B/C	A/B	18	16
ALH 83038	86.5	L-3 CHONDRITE	C	A/B	7-35	2-22
ALH 83039	6.3	H-5 CHONDRITE	B	A/B	18	16
ALH 83040	77.9	H-5 CHONDRITE	B/C	A	18	16
ALH 83041 ~	0.3	L-6 CHONDRITE	C	A		
ALH 83042	0.5	H-3 CHONDRITE	B	A	7-33	2-16
ALH 83043 ~	2.7	L-6 CHONDRITE	B	A/B		
ALH 83044	4.8	H-5 CHONDRITE	A	A	19	17
ALH 83045	1.6	L-5 CHONDRITE	B/C	A	24	20
ALH 83054 ~	16.8	LL-6 CHONDRITE	A	A		
ALH 83055	18.4	H-5 CHONDRITE	B/C	A	18	16
ALH 83056	1.4	H-5 CHONDRITE	A/B	A	18	16
ALH 83057	62.9	H-5 CHONDRITE	B	B	18	16
ALH 83058 ~	29.2	L-6 CHONDRITE	A	A		
ALH 83059	3.5	H-5 CHONDRITE	B/C	A	19	17
ALH 83060	8.8	H-5 CHONDRITE	C	B	18	16
ALH 83061	33.6	H-5 CHONDRITE	B/C	A/B	17	15
ALH 83062	76.9	H-5 CHONDRITE	B/C	B	17	15
ALH 83063 ~	16.9	L-6 CHONDRITE	A/B	A		
ALH 83064	12.4	H-5 CHONDRITE	C	A/B	18	16
ALH 83065	53.6	H-5 CHONDRITE	C	A	17	15
ALH 83066	45.9	H-5 CHONDRITE	C	B	17	15
ALH 83068	0.8	H-5 CHONDRITE	C	A	17	15
ALH 83071	4.9	H-6 CHONDRITE	B/C	A	18	16
ALH 83072	1.6	H-5 CHONDRITE	C	A	18	16
ALH 83073	49.2	H-5 CHONDRITE	C	B	18	16
ALH 83074	6.4	H-5 CHONDRITE	C	A	17	16

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
ALH 83103 ~	51.8	H-6 CHONDRITE	B	A		
ALH 83104	2.1	H-5 CHONDRITE	B	A	18	16
ALH 83105 ~	0.7	L-6 CHONDRITE	A	A		
ALH 83107	38.4	H-5 CHONDRITE	B/C	A	18	16
EET 83254	7.7	E-4 CHONDRITE	C	B/C		0-9
EET 83255 ~	38.8	L-6 CHONDRITE	B	A		
EET 83256	5.0	H-5 CHONDRITE	B	A	18	16
EET 83257 ~	13.6	L-6 CHONDRITE	B	A		
EET 83258 ~	46.7	L-6 CHONDRITE	A/B	A		
EET 83259	4.1	L-6 CHONDRITE			24	20
EET 83261 ~	54.5	L-6 CHONDRITE	A	A		
EET 83263	10.2	H-6 CHONDRITE	C	B/C	19	17
EET 83264 ~	17.5	L-6 CHONDRITE	B	A		
EET 83265 ~	54.9	L-6 CHONDRITE	B	A		
EET 83266 ~	55.9	L-6 CHONDRITE	B	A		
EET 83268	19.5	L-6 CHONDRITE	C	A	24	20
EET 83270	2.4	H-6 CHONDRITE	C	B	19	16
EET 83272 ~	34.5	L-6 CHONDRITE	B	A		
EET 83273 ~	146.6	LL-6 CHONDRITE	A/B	A		
EET 83275 ~	85.8	H-6 CHONDRITE	B	A		
EET 83277	52.7	L-5 CHONDRITE	A/B	A	23	19
EET 83278	71.9	H-5 CHONDRITE	B	A	17	15
EET 83279 ~	35.6	L-6 CHONDRITE	B	A		
EET 83280 ~	29.1	L-6 CHONDRITE	B/C	A		
EET 83281	51.0	H-6 CHONDRITE	C	B	18	16
EET 83282	78.9	H-5 CHONDRITE	B/C	B	18	16
EET 83284 ~	53.3	L-6 CHONDRITE	B	A		
EET 83286 ~	33.6	L-6 CHONDRITE	B	B		
EET 83287	46.0	H-5 CHONDRITE	B	B	17	15
EET 83288 ~	37.7	H-6 CHONDRITE	C	B		
EET 83291	4.7	L-5 CHONDRITE	B/C	B	24	21
EET 83293	18.6	H-5 CHONDRITE	B	A/B	18	16
EET 83294 ~	82.4	L-6 CHONDRITE	B	B		
EET 83296 ~	62.9	L-6 CHONDRITE	A/B	A		
EET 83297 ~	17.5	L-6 CHONDRITE	B/C	A		
EET 83298	8.9	L-6 CHONDRITE	C	A	24	20
EET 83299	6.3	H-6 CHONDRITE	C	B/C	19	17
EET 83301 ~	87.0	L-6 CHONDRITE	B	A		
EET 83302 ~	130.4	L-6 CHONDRITE	A/B	A		
EET 83304 ~	37.3	L-6 CHONDRITE	A/B	B		
EET 83306	41.8	L-6 CHONDRITE	B	A	23	20
EET 83310	64.2	H-6 CHONDRITE	C	A	18	16
EET 83311	15.3	CARBONACEOUS C4	A/B	A/B	31	
EET 83314 ~	23.7	L-6 CHONDRITE	B	A		
EET 83315 ~	113.5	L-6 CHONDRITE	B/C	B		
EET 83316 ~	51.1	L-6 CHONDRITE	B/C	A		
EET 83319 ~	7.2	L-6 CHONDRITE	C	B		
EET 83320	56.3	H-6 CHONDRITE	C	B	18	16
EET 83321	11.0	H-6 CHONDRITE	C	A	18	16
EET 83325 ~	93.4	L-6 CHONDRITE	C	B		
EET 83328 ~	88.1	L-6 CHONDRITE	B/C	A		

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 83330 ~	49.2	L-6 CHONDRITE	B	A		
EET 83331	0.3	H-5 CHONDRITE	B/C	A	17	15
EET 83334	2.5	CARBONACEOUS C2	A	A		
EET 83336 ~	130.0	L-6 CHONDRITE	B/C	B		
EET 83338	26.6	H-5 CHONDRITE	C	B	18	16
EET 83339 ~	72.7	L-6 CHONDRITE	B	B		
EET 83340	15.2	L-5 CHONDRITE	B	B	26	22
EET 83341 ~	65.0	LL-6 CHONDRITE	B	B		
EET 83344 ~	87.1	L-6 CHONDRITE	C	A		
EET 83345	11.8	L-6 CHONDRITE	C	A	24	20
EET 83346	21.5	H-5 CHONDRITE	B	B	18	16
EET 83347	37.2	H-5 CHONDRITE	C	A	17	15
EET 83349	27.5	H-5 CHONDRITE	C	B	19	16
EET 83350 ~	88.7	L-6 CHONDRITE	A/B	A		
EET 83351	80.8	H-5 CHONDRITE	B	B	18	16
EET 83352 ~	20.4	LL-6 CHONDRITE	B/C	B		
EET 83353 ~	53.8	L-6 CHONDRITE	A/B	B		
EET 83354	8.4	L-6 CHONDRITE	C	B	24	20
EET 83355	66.2	CARBONACEOUS C2	A/B	B	0-28	0-9
EET 83356 ~	18.2	L-6 CHONDRITE	B	B		
EET 83357 ~	35.4	LL-6 CHONDRITE	B/C	A		
EET 83358 ~	25.7	L-6 CHONDRITE	B/C	A		
EET 83359 ~	66.2	LL-6 CHONDRITE	C	A		
EET 83360 ~	40.1	H-6 CHONDRITE	C	A		
EET 83361	5.8	LL-5 CHONDRITE	A/B	A	27	23
EET 83362 ~	10.1	H-6 CHONDRITE	B/C	A		
EET 83365 ~	157.6	L-6 CHONDRITE	B	B/C		
EET 83366 ~	188.5	L-6 CHONDRITE	B	A		
EET 83367	107.4	H-6 CHONDRITE	C	B	18	16
EET 83368	50.9	L-6 CHONDRITE	C	A	24	20
EET 83369	38.9	H-5 CHONDRITE	C	A	16	14
EET 83370 ~	24.1	L-6 CHONDRITE	C	B		
EET 83371 ~	169.9	L-6 CHONDRITE	B	A		
EET 83372	168.9	H-5 CHONDRITE	B	C	18	16
EET 83373	158.9	H-6 CHONDRITE	C	A	17	15
EET 83374	95.8	H-6 CHONDRITE	C	A	18	16
EET 83375 ~	266.6	L-6 CHONDRITE	B	B		
EET 83377	151.7	H-5 CHONDRITE	C	B/C	18	16
EET 83378 ~	212.3	L-6 CHONDRITE	B	A		
EET 83379 ~	177.4	L-6 CHONDRITE	B	A		
EET 83380 ~	118.5	LL-6 CHONDRITE	B	A		
EET 83382	11.6	H-6 CHONDRITE	B	B	18	16
EET 83383 ~	116.8	L-6 CHONDRITE	B	A		
EET 83384 ~	21.7	L-6 CHONDRITE	B	A		
EET 83385 ~	3.9	H-6 CHONDRITE	B/C	A		
EET 83386	37.8	L-5 CHONDRITE	A/B	A	24	20
EET 83387 ~	80.9	L-6 CHONDRITE	C	B		
EET 83388	34.7	H-5 CHONDRITE	C	A	19	16
EET 83389	19.2	CARBONACEOUS C2	A/B	A/B	.2-37	1-13
EET 83391 ~	90.7	LL-6 CHONDRITE	A/B	A		
EET 83392 ~	163.8	L-6 CHONDRITE	B	B		
EET 83393 ~	30.0	H-6 CHONDRITE	B/C	B		

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 83394 ~	54.3	H-6 CHONDRITE	C	A		
EET 83395	65.3	L-3 CHONDRITE	B	A	6-30	2-17
EET 83396 ~	198.3	L-6 CHONDRITE	A/B	A		
EET 83397	32.1	H-6 CHONDRITE	C	B/C	19	16
EET 83398	67.2	L-5 CHONDRITE	B	B/C	25	21
EET 83400	112.9	H-5 CHONDRITE	C	A	17	15
EET 83401 ~	111.7	LL-6 CHONDRITE	A/B	A		
EET 83402	50.3	H-5 CHONDRITE	C	B	17	15
EET 83403	11.7	H-5 CHONDRITE	C	A	18	16
ALH 84106 ~	94.7	L-6 CHONDRITE	B/C	A		
ALH 84122 ~	81.4	LL-6 CHONDRITE	A/B	A		
ALH 84123 ~	96.6	LL-6 CHONDRITE	B	B		
ALH 84125 ~	76.4	LL-6 CHONDRITE	A	A/B		
ALH 84127 ~	83.8	L-6 CHONDRITE	B	B		
ALH 84130 ~	45.1	L-6 CHONDRITE	B/C	B		
ALH 84142 ~	78.5	L-6 CHONDRITE	A/B	B		
ALH 84143 ~	74.3	L-6 CHONDRITE	B	B		
ALH 84160 ~	53.9	L-6 CHONDRITE	B	A		
ALH 84166 ~	39.0	L-6 CHONDRITE	B	B/C		
ALH 84171 ~	36.6	H-6 CHONDRITE	C	A		
ALH 84174 ~	32.2	L-6 CHONDRITE	B	B		
ALH 84181 ~	32.9	L-6 CHONDRITE	A/B	B		
ALH 84186 ~	19.6	H-6 CHONDRITE	B	B/C		
ALH 84189 ~	8.7	H-6 CHONDRITE	C	B		
ALH 84193 ~	9.4	L-6 CHONDRITE	A/B	C		
ALH 84197 ~	8.2	L-6 CHONDRITE	B	A		
ALH 84203 ~	8.8	L-6 CHONDRITE	A/B	B		
ALH 84204 ~	24.4	H-6 CHONDRITE	C	B		
ALH 84207 ~	4.5	L-6 CHONDRITE	B	A		
ALH 84210 ~	8.8	L-6 CHONDRITE	C	B/C		
ALH 84212 ~	7.1	L-6 CHONDRITE	B/C	A/B		
ALH 84214 ~	4.9	H-6 CHONDRITE	B/C	A		
ALH 84218 ~	33.0	L-6 CHONDRITE	A/B	A/B		
ALH 84219 ~	9.8	L-6 CHONDRITE	C	A		
ALH 84229 ~	6.9	L-6 CHONDRITE	B	A		
ALH 84231 ~	42.6	L-6 CHONDRITE	B	B		
ALH 84233	13.6	IRON				
ALH 84238 ~	1.9	L-6 CHONDRITE	B	B		
ALH 84243 ~	48.9	H-6 CHONDRITE	C	A		
ALH 84244 ~	33.5	L-6 CHONDRITE	B	A		
ALH 84247 ~	49.6	L-6 CHONDRITE	A/B	B		
ALH 84256 ~	3.0	L-6 CHONDRITE	B	B		
ALH 84257 ~	18.8	H-6 CHONDRITE	B	B		
ALH 84261 ~	5.1	L-6 CHONDRITE	A	A		
ALH 85037	141.2	H-6 CHONDRITE	B/C	B	18	16
ALH 85038	124.9	H-5 CHONDRITE	B/C	A	17	15
ALH 85039	140.2	L-6 CHONDRITE	A	A	23	20
ALH 85040 ~	95.7	L-6 CHONDRITE	B	A/B		
ALH 85041	168.0	H-6 CHONDRITE	C	B/C	18	16
ALH 85042	127.9	H-5 CHONDRITE	B/C	A	17	15

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
ALH 85043	204.7	H-5 CHONDRITE	B	A	18	16
ALH 85044	104.8	H-6 CHONDRITE	C	B	18	16
ALH 85045	145.0	L-3 CHONDRITE	A/B	A	22-26	13-22
ALH 85046	148.9	L-6 CHONDRITE	B	A/B	23	20
ALH 85047 ~	4.2	L-6 CHONDRITE	B	A		
ALH 85048	16.9	H-5 CHONDRITE	C	A/B	18	16
ALH 85049 ~	4.8	L-6 CHONDRITE	B/C	A		
ALH 85050 ~	0.9	L-6 CHONDRITE	A	A/B		
ALH 85053	0.5	L-4 CHONDRITE	C	A	25	14-20
ALH 85057 ~	0.8	LL-6 CHONDRITE	A	A		
ALH 85059 ~	8.8	LL-6 CHONDRITE	A	A		
ALH 85060 ~	0.5	L-6 CHONDRITE	B	A		
ALH 85061 ~	2.0	L-6 CHONDRITE	A/B	B		
ALH 85062	167.3	L-3 CHONDRITE	B/C	A/B	1-25	3-19
ALH 85063 ~	12.7	L-6 CHONDRITE	B	B		
ALH 85064 ~	3.7	L-6 CHONDRITE	C	B		
ALH 85065 ~	9.7	L-6 CHONDRITE	B	A		
ALH 85066	8.0	LL-6 CHONDRITE	B	A/B	28	23
ALH 85072 ~	4.3	H-6 CHONDRITE	C	B		
ALH 85073 ~	15.6	LL-6 CHONDRITE	A/B	A		
ALH 85075 ~	36.4	L-6 CHONDRITE	B	A/B		
ALH 85076 ~	78.3	L-6 CHONDRITE	B	B		
ALH 85079 ~	83.1	LL-6 CHONDRITE	A/B	B		
ALH 85080 ~	54.2	L-6 CHONDRITE	B	B		
ALH 85082 ~	19.4	L-6 CHONDRITE	A/B	B		
ALH 85083 ~	92.9	L-6 CHONDRITE	A/B	B		
ALH 85084 ~	18.4	LL-6 CHONDRITE	B	A/B		
ALH 85085	11.9	E-3 CHONDRITE	A/B	A/B	1-5	1-4
ALH 85087 ~	11.3	L-6 CHONDRITE	A/B	B		
ALH 85090 ~	10.5	L-6 CHONDRITE	B/C	A		
ALH 85092	25.6	L-5 CHONDRITE	A/B	A/B	23	19
ALH 85093 ~	11.5	L-6 CHONDRITE	B	A/B		
ALH 85094 ~	8.7	H-6 CHONDRITE	C	A		
ALH 85095 ~	32.5	L-6 CHONDRITE	B	A		
ALH 85096 ~	3.1	L-6 CHONDRITE	A	A		
ALH 85106	2.7	CARBONACEOUS C2	B	A	0.3-30	
ALH 85109 ~	20.7	H-6 CHONDRITE	C	A		
ALH 85112 ~	23.0	L-6 CHONDRITE	A/B	B/C		
ALH 85113 ~	39.9	L-6 CHONDRITE	A/B	B		
ALH 85114	11.4	H-5 CHONDRITE	C	A	18	16
ALH 85115 ~	21.9	L-6 CHONDRITE	B	C		
ALH 85117 ~	27.8	H-6 CHONDRITE	B/C	A/B		
ALH 85118	48.0	L-5 CHONDRITE	B/C	A	24	21
ALH 85119	20.6	E-4 CHONDRITE	B	B/C		0.3-12
ALH 85123	15.3	L-5 CHONDRITE	B	B	23	20
ALH 85124 ~	63.5	L-6 CHONDRITE	B	B		
ALH 85128 ~	16.1	H-6 CHONDRITE	C	A		
ALH 85129 ~	127.4	LL-6 CHONDRITE	A/B	A		
ALH 85130	99.7	H-6 CHONDRITE	B	A/B	18	16
ALH 85131 ~	34.2	L-6 CHONDRITE	B	B		
ALH 85132 ~	49.3	L-6 CHONDRITE	A/B	A/B		
ALH 85135 ~	11.6	LL-6 CHONDRITE	B/C	A		

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
ALH 85137 ~	6.7	LL-6 CHONDRITE	A/B	B/C		
ALH 85138 ~	18.0	LL-6 CHONDRITE	B	A/B		
ALH 85147 ~	3.0	L-6 CHONDRITE	B	A		
ALH 85148 ~	3.6	H-6 CHONDRITE	A	A		
ALH 85149 ~	16.9	L-6 CHONDRITE	B/C	A/B		
ALH 85151	13.9	CARBONACEOUS C4	B	A/B	0.4-41	6-30
ALH 85152 ~	36.4	LL-6 CHONDRITE	A/B	B		
ALH 85153	0.4	H-4 CHONDRITE	B	A	18	16-21
ALH 85154 ~	4.9	LL-6 CHONDRITE	A/B	A		
ALH 85155	18.5	L-3 CHONDRITE	A/B	A	8-28	4-20
ALH 85157 ~	20.1	L-6 CHONDRITE	B	A		
ALH 85158 ~	2.9	LL-6 CHONDRITE	B	B		
ALH 85159	11.0	E-4 CHONDRITE	B/C	B		.3-1.8
BOW 85800	140.6	H-6 CHONDRITE	C	A	18	16
DOM 85505	31.4	LL-5 CHONDRITE	B	B	26	22
DOM 85506	58.8	LL-5 CHONDRITE	A/B	B		
DOM 85507	189.9	H-5 CHONDRITE	C	B	19	17
DOM 85508	14.0	H-6 CHONDRITE	C	A	19	17
DOM 85509 ~	76.1	L-6 CHONDRITE	B/C	B		
DOM 85510 ~	31.7	L-6 CHONDRITE	B/C	A		
GRO 85201	1400.7	IRON-OCTAHEDRITE				
GRO 85214	259.8	L-5 CHON. W/ENCLAVE	B	B	24	21
GRO 85215	35.2	L-5 CHONDRITE	B	A		
GRO 85216	12.4	L-5 CHONDRITE	B	A		
GRO 85217	33.6	L-5 CHONDRITE	B/C	A		
GRO 85218	6.8	H-6 CHONDRITE	C	A	18	16
LEW 85301 ~	13.1	H-6 CHONDRITE	B/C	A		
LEW 85327	439.4	H-5 CHONDRITE	B/C	B	17	15
LEW 85337 ~	57.4	H-6 CHONDRITE	C	A		
LEW 85340	102.7	L-5 CHONDRITE	B	A	23	19
LEW 85355	5.5	H-5 CHONDRITE	C	A/B	17	15
LEW 85356 ~	8.1	L-6 CHONDRITE	B/C	A		
LEW 85358	14.1	H-5 CHONDRITE	C	B	18	16
LEW 85369	6.3	IRON				
LEW 85373 ~	45.2	H-6 CHONDRITE	C	B		
LEW 85375	37.1	H-5 CHONDRITE	C	A	17	15
LEW 85377 ~	30.8	H-6 CHONDRITE	C	A/B		
LEW 85378 ~	65.6	H-6 CHONDRITE	C	A/B		
LEW 85380 ~	14.5	L-6 CHONDRITE	B	A		
LEW 85381 ~	21.7	H-6 CHONDRITE	C	A		
LEW 85384 ~	5.6	H-6 CHONDRITE	C	B		
LEW 85386 ~	14.2	LL-6 CHONDRITE	A/B	B/C		
LEW 85388 ~	3.5	L-6 CHONDRITE	B/C	A		
LEW 85397	57.3	L-6 CHON. BRECCIA	C	A	19-22	17-20
LEW 85399 ~	8.2	H-6 CHONDRITE	C	A		
LEW 85400	6.4	H-6 CHONDRITE	B/C	A	18	16
LEW 85402 ~	65.9	H-6 CHONDRITE	C	B		
LEW 85403 ~	12.2	L-6 CHONDRITE	A/B	B		

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
LEW 85408 ~	3.5	H-6 CHONDRITE	B	A		
LEW 85410 ~	2.3	H-6 CHONDRITE	C	A		
LEW 85411 ~	3.6	H-6 CHONDRITE	C	A		
LEW 85413 ~	13.6	L-6 CHONDRITE	B	A		
LEW 85415	3.4	LL-6 CHONDRITE	A	A	30	24
LEW 85420	12.4	L-6 CHON. BRECCIA	B/C	A	25	20
LEW 85424 ~	4.4	L-6 CHONDRITE	B/C	A		
LEW 85428 ~	21.2	L-6 CHONDRITE	B/C	A		
LEW 85429	6.8	LL-6 CHONDRITE	C	A	27	23
LEW 85431 ~	29.6	L-6 CHONDRITE	C	A		
LEW 85432 ~	2.4	L-6 CHONDRITE	B	A		
LEW 85435	20.7	H-5 CHONDRITE	C	A/B	17	15
LEW 85436	9.3	L-6 CHONDRITE	C	A	23	20
LEW 85438 ~	3.2	LL-6 CHONDRITE	A/B	A		
LEW 85439 ~	2.7	L-6 CHONDRITE	C	A		
LEW 85442 ~	28.8	L-6 CHONDRITE	B/C	A/B		
LEW 85443	9.9	L-4 CHONDRITE	B	A/B	25	10-23
LEW 85444 ~	2.3	L-6 CHONDRITE	C	A		
LEW 85445	10.8	H-4 CHONDRITE	B/C	A	18	13-16
LEW 85446 ~	41.5	H-6 CHONDRITE	C	A		
LEW 85449 ~	11.9	L-6 CHONDRITE	C	A		
LEW 85454 ~	8.2	L-6 CHONDRITE	C	A		
LEW 85457 ~	20.3	L-6 CHONDRITE	B/C	A		
LEW 85461 ~	21.2	L-6 CHONDRITE	B/C	A		
LEW 85463 ~	12.3	L-6 CHONDRITE	C	A		
LEW 85465 ~	57.5	L-6 CHONDRITE	B	A		
LEW 85467 ~	4.5	LL-6 CHONDRITE	B/C	A		
LEW 85469 ~	7.7	H-6 CHONDRITE	C	A		
LEW 86001	290.6	EUCRITE	B	A		22-57
LEW 86002	32.6	EUCRITE (UNBRECCIATED)	A/B	A		31-61
LEW 86003	1.6	EUCRITE (BRECCIATED)	B	A		26-64
LEW 86004	2.1	CARBONACEOUS C2	B	A	0-54	0-7
LEW 86005	4.7	CARBONACEOUS C2	A/B	A	0-38	0-3
LEW 86006	0.8	CARBONACEOUS C3V	B	A	0-27	0-5
LEW 86007	1.6	CARBONACEOUS C2	A/B	A	0-42	0-4
LEW 86008	5.6	CARBONACEOUS C2	B	A	0-25	0-3
LEW 86009	6.5	CARBONACEOUS C2	A/B	A/B	0-45	0-2
LEW 86010	6.9	ACHON. (UNIQUE)	A/B	A/B	63	19
LEW 86018	502.0	L-3 CHONDRITE	B	B	0.7-32	2-9
QUE 86900	1532.3	MESOSIDERITE	C	A		21-64

~ Classified by using refractive indices.

Table 2.
Newly Classified Specimens Listed By Type **

Carbonaceous Chondrites

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 83334	2.5	CARBONACEOUS C2	A	A		
EET 83355	66.2	CARBONACEOUS C2	A/B	B	0-28	0-9
EET 83389	19.2	CARBONACEOUS C2	A/B	A/B	.2-37	1-13
ALH 85106	2.7	CARBONACEOUS C2	B	A	0.3-30	
LEW 86004	2.1	CARBONACEOUS C2	B	A	0-54	0-7
LEW 86005	4.7	CARBONACEOUS C2	A/B	A	0-38	0-3
LEW 86007	1.6	CARBONACEOUS C2	A/B	A	0-42	0-4
LEW 86008	5.6	CARBONACEOUS C2	B	A	0-25	0-3
LEW 86009	6.5	CARBONACEOUS C2	A/B	A/B	0-45	0-2
ALH 83026	0.1	CARBONACEOUS C3O	B	A	.3-18	.7-12
LEW 86006	0.8	CARBONACEOUS C3V	B	A	0-27	0-5
EET 83311	15.3	CARBONACEOUS C4	A/B	A/B	31	
ALH 85151	13.9	CARBONACEOUS C4	B	A/B	0.4-41	6-30

E Chondrites

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
ALH 85085	11.9	E-3 CHONDRITE	A/B	A/B	1-5	1-4
EET 83254	7.7	E-4 CHONDRITE	C	B/C		0-9
ALH 85119	20.6	E-4 CHONDRITE	B	B/C		0.3-12
ALH 85159	11.0	E-4 CHONDRITE	B/C	B		.3-1.8
ALH 83018	3.7	E-6 CHONDRITE	B/C	A		0

Chondrites - Type 3

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
ALH 83042	0.5	H-3 CHONDRITE	B	A	7-33	2-16
ALH 83017	0.6	L-3 CHONDRITE		A	0.8-28	4-20
ALH 83038	86.5	L-3 CHONDRITE	C	A/B	7-35	2-22
EET 83395	65.3	L-3 CHONDRITE	B	A	6-30	2-17
ALH 85045	145.0	L-3 CHONDRITE	A/B	A	22-26	13-22
ALH 85062	167.3	L-3 CHONDRITE	B/C	A/B	1-25	3-19
ALH 85155	18.5	L-3 CHONDRITE	A/B	A	8-28	4-20
LEW 86018	502.0	L-3 CHONDRITE	B	B	0.7-32	2-9

Table 2 (cont.).

Achondrites

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
LEW 86010	6.9	ACHON. (UNIQUE)	A/B	A/B	63	19
LEW 86001	290.6	EUCRITE	B	A		22-57
LEW 86003	1.6	EUCRITE (BRECCIATED)	B	A		26-64
LEW 86002	32.6	EUCRITE (UNBRECCIATED)	A/B	A		31-61

Irons

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
ALH 84233	13.6	IRON				
LEW 85369	6.3	IRON				
GRO 85201	1400.7	IRON-OCTAHEDRITE				

Stony-Irons

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 86900	1532.3	MESOSIDERITE	C	A		21-64

Table 3 summarizes possible pairings of the new specimens with each other and with previously classified specimens, based on descriptive data in this newsletter issue. Readers who desire a more comprehensive review of the meteorite pairings in the U. S. Antarctic collection should refer to the compilation provided by Dr. E. R. D. Scott, as published in issue 9(2) (June, 1986).

TABLE 3.

TENTATIVE PAIRINGS FOR NEW SPECIMENS

Carbonaceous C2:
EET83355 with EET83226.

LEW86004, 86005, 86007, 86008, 86009.

Carbonaceous C3O:
ALH83026 with ALHA77003.

E-4 CHONDRITE:
ALH85159 with ALH82132.

EET83254 with EET83307.

E-6 CHONDRITE:
ALH83018 with ALHA81021.

H-5 CHONDRITE:
LEW84355, 85435 with LEW85316.

L-3 Chondrite:
ALH83038, 85155 with ALHA77011.

EET83395 with EET83274.

L-5 Chondrite:
GRO85214, 85215, 85216, 85217.

LL-5 Chondrite:
DOM85505, 85506.

Sample No.: ALH83017
Weight (g): 0.6
Dimensions (cm): 1 x 0.8 x 0.3 cm
Meteorite Type: L3 Chondrite

Location: Allan Hills
Field No.: 2127

Macroscopic Description: Carol Schwarz
This tiny specimen is totally covered with fusion crust which is bubbly on one surface. The entire chip was used to make a thin section.

Thin Section (,1) Description: Brian Mason
Chondrules and chondrule fragments are abundant, ranging up to 1.8 mm across; most are granular or porphyritic olivine and olivine-pyroxene, but barred olivine and fine-grained pyroxene chondrules are also present. Nickel-iron and sulfide are present in minor amounts. The section is completely surrounded by fusion crust. Microprobe analyses show olivine ranging in composition from $Fa_{0.8}$ to Fa_{28}, with a mean of Fa_{19} (CV FeO is 50); pyroxene composition ranges from Fs_4 to Fs_{20}. The meteorite is an L3 chondrite (probably L3.5).

Sample No.: ALH83018
Weight (g): 3.7
Dimensions (cm): 2.5 x 1.7 x 4
Meteorite Type: E6 Chondrite

Location: Allan Hills
Field No.: 2139

Macroscopic Description: Carol Schwarz
This flat meteorite fragment has weathered fusion crust on the top and a weathered fracture surface on the bottom. The interior is dark and weathered. Metal is abundant.

Thin Section (,2) Description: Brian Mason
Chondritic structure is barely discernable in the section, which consists largely of granular and prismatic enstatite (grains averaging 0.15 mm), with considerable nickel-iron, minor troilite and plagioclase, and traces of sinoite (Si_2N_2O, recognized by its high birefringence). Considerable weathering is indicated by areas of brown limonite and limonitic staining throughout the section. Fusion crust is present along one edge. Microprobe analyses show that the enstatite is almost pure $MgSiO_3$ (FeO 0.1-0.2, CaO 0.7-0.8%); plagioclase is $An_{14}Or_4$; the nickel-iron contains 1.2% Si. The meteorite is an E6 chondrite, very similar to ALH81021 in all respects.

Sample No.: ALH83038 Location: Allan Hills
Weight (g): 86.5 Field No.: 2517
Dimensions (cm): 5 x 4 x 3
Meteorite Type: L3 Chondrite

Macroscopic Description: Rene Martinez
Brown, polygonally fractured fusion crust covers the top and iridescent fusion crust covers the bottom. Interior is heavily weathered, no features are visible in the brown matrix.

Thin Section (,3) Description: Brian Mason
Chondrules and chondrule fragments are abundant, ranging up to 2.4 mm across, and are set in a small amount of fine-grained turbid matrix. A few grains of nickel-iron and sulfide are present in the matrix. Brown limonitic staining pervades the section. Microprobe analyses show olivine ranging in composition from Fa_7 to Fa_{35}, with a mean of Fa_{21} (CV FeO is 34); pyroxene composition ranges from Fs_2 to Fs_{22}. The meteorite is an L3 chondrite (estimated L3.6); it may be another member of the ALHA77011 pairing group.

Sample No.: ALH83042 Location: Allan Hills
Weight (g): 0.5 Field No.: 2125
Dimensions (cm): 1 x 0.5 x 0.5
Meteorite Type: H3 Chondrite

Macroscopic Description: Rene Martinez
This tiny specimen consists mainly of fusion crust and a small amount of moderately weathered chondritic material.

Thin Section (,2) Description: Brian Mason
The small section shows numerous chondrules, up to 0.7 mm across, in a finely granular groundmass which contains a moderate amount of nickel-iron and troilite. The chondrules consist mainly of granular olivine and olivine-pyroxene, with some of fine-grained radiating pyroxene. The section is stained yellow-brown with limonitic material, with small areas of red-brown limonite along one edge. Microprobe analyses show olivine ranging in composition from Fa_7 to Fa_{33}, with a mean of Fa_{20} (CV FeO is 31); pyroxene composition ranges from Fs_2 to Fs_{16}. The composition of the olivine and pyroxene and the amount of nickel-iron indicate H group, and the range of olivine composition type 3, hence the meteorite is classified as an H3 chondrite (estimated H3.6).

Sample No.: ALH84233 Location: Allan Hills
Weight (g): 13.6 Field No.: 2141
Dimensions (cm): 2 x 1.5 x 1
Meteorite Type: Iron with Silicate Inclusion

Macroscopic Description: Roy S. Clarke, Jr.
This reddish brown rounded specimen has an elongation at one side giving it somewhat of a teardrop shape. Atmospheric ablation appears to have been an important shaping process. Suggestions of small areas of remnant fusion crust were noted but mainly fusion crust has been obliterated by weathering. One side of the specimen has been more severely weathered, suggesting it was the underside while exposed on the surface.

Polished Section Description: Roy S. Clarke, Jr.
A median slice provided an area of approximately 1.5 cm^2 for examination. The metal appears to have been single crystal kamacite with an occasional subgrain boundary that has been transformed throughout to a coarse grained martensite structure. Its Ni content is greater than 6%, too high for a IIA meteorite. No significant troilite or schreiberiste was observed in the metal. Much of the edge of the slice is penetrated by about 0.1 mm of terrestrial weathering. In a few areas, both weathering products and remnant fusion crust were observed.

At the base of the elongation, where it joins the main body of the specimen, is a 1 mm area of weathered silicate material. Its external edge has been melted by atmospheric ablation, and it contains small bodies of troilite and kamacite. On the basis of a small number of electron microprobe analyses, the silicates seem uniform in composition. Olivine (Fa_{20}), pyroxene (Fs_{17}), and plagioclase ($Ab_{83}An_{12}Or_4$) are present.

Sample No.: ALH85045 Location: Allan Hills
Weight (g): 145.0 Field No.: 2638
Dimensions (cm): 6 x 4 x 3
Meteorite Type: L3 Chondrite

Macroscopic Description: Rene Martinez
Fractured brown fusion crust covers most of ALH85045. The interior is light gray and contains abundant chondrules as large as 3 mm. The stone is friable.

Thin Section (,4) Description: Brian Mason
The section shows a close-packed aggregate of chondrules and chondrule fragments in a finely granular matrix. Metal grains are moderately abundant in the matrix and in a few chondrules; sulfide is present in lesser amount. Chondrules range up to 2.4 mm in diameter; a variety of types is present. Microprobe analyses gave the following compositions: olivine, Fa_{22-26}, mean Fa_{23} (CV FeO = 8); pyroxene, Fs_{13-22}. The variability of olivine and pyroxene compositions indicates type 3, and the amount of metal suggests L group; the meteorite is therefore classified as an L3 chondrite, probably L3.9.

Sample No.: ALH85062
Weight (g): 167.3
Dimensions (cm): 5 x 4 x 4.5
Meteorite Type: L3 Chondrite

Location: Allan Hills
Field No.: 2625

Macroscopic Description: Roberta Score
ALH85062 is a rounded stone that is brown in color where the dull black fusion crust has exfoliated off. Brown oxidation is evenly disseminated throughout the gray matrix obscuring most features present. Metal grains are abundant. This stone was extremely difficult to cleave.

Thin Section (,4) Description: Brian Mason
The section shows a close-packed aggregate of chondrules and chondrule fragments (0.3-2.1 mm across) in a dark matrix, which includes minor amounts of nickel-iron and troilite. A variety of chondrule types is present, including granular and porphyritic olivine and fine-grained pyroxene. Brown limonitic staining pervades the section. Both olivine and pyroxene show a wide range in composition: olivine, Fa_{1-25}, mean Fa_{12} (CV FeO = 46); pyroxene, Fs_{3-19}. This range of compositions indicates type 3, and the small amount of nickel-iron suggests L group; the meteorite is therefore classified as an L3 chondrite, probably L3.5.

Sample No.: ALH85085
Weight (g): 11.9
Dimensions (cm): 1.5 x 2 x 0.8
Meteorite Type: E3 Chondrite

Location: Allan Hills
Field No.: 2248

Macroscopic Description: Roberta Score
Entire stone is covered with iridescent brown fusion crust. The interior is black with abundant small white inclusions (<1 mm). Some oxidation is present.

Thin Section (,3) Description: Brian Mason
The section shows numerous small (up to 0.1 mm) silicate grains and rare chondrules and chondrule fragments in an opaque ground-mass which consists largely of nickel-iron, mostly as small grains but ranging up to 0.3 mm across. Sulfides are rare. Some ovoid opaque masses, up to 0.5 mm across, of low reflectance, are present; their composition is similar to that of the matrix of C2 chondrites. Some of the chondrules consist largely of trans-parent to partly devitrified colorless glass. The silicate minerals are mainly pyroxene, with some olivine; pyroxene composition is Fs 1-4, olivine composition Fa 1-5. One grain of feldspar (Na_2O 9.3, K_2O 2.9, CaO 0.25%) was analysed. Glass in a chondrule has approximately pyroxenic composition: SiO_2 53.5, Al_2O_3 2.8, FeO 1.2, MgO 42.5, CaO 1.8, K_2O 0.1, Na_2O 0.2, TiO_2 0.2, MnO 0.2%. The metal is entirely kamacite (Ni 6.7%) and contains no detectable Si. The meteorite is tentatively classified as an E3 Chondrite.

Sample No.: ALH85106
Weight (g): 2.7
Dimensions (cm): 1.5 x 1.5 x 1.5
Meteorite Type: C2 Chondrite

Location: Allan Hills
Field No.: 2650

Macroscopic Description: Roberta Score
The overall color of this weathered carbonaceous chondrite is greenish-gray. This greenish weathering extends 2 mm into the interior. The core of this stone is black and contains small white inclusions.

Thin Section (,2) Description: Brian Mason
The section shows silicate grains, irregular aggregates, and rare chondrules in a translucent to opaque matrix. Nickel-iron and sulfide are present in trace amounts. Microprobe analyses show olivine of variable composition - many grains are near Fa_{1}, but the range is $Fa_{0.3-30}$; pyroxene is rare. The meteorite is a C2 chondrite.

Sample No.: ALH85114
Weight (g): 11.4
Dimensions (cm): 3 x 2 x 1.5
Meteorite Type: H5 Chondrite with Enclave

Location: Allan Hills
Field No.: 2626

Macroscopic Description: Roberta Score
ALH85114 is a very weathered chondrite fragment with an unusual feature. A fractured, but coherent, greenish-gray, 0.7 x 0.7 x 0.5 cm, olivine clast remains on the exterior surface. Dull black fusion crust covers 70% of the exterior. The fracture surface that contains the clast is red-brown. The interior of ALH85114 is extensively weathered.

Thin Section (,4) Description: Brian Mason
The section shows numerous chondrules, up to 1.5 mm across, in a matrix of fine-grained olivine and pyroxene with minor amounts of troilite and nickel-iron. On one edge is an enclave consisting largely of coarse-grained olivine (crystals up to 1.8 mm long). Some of the crystals appear to be granulated, possibly a shock effect; others are barred, the bars consisting of plagioclase (An_{11}). In the chondritic area mineral compositions are olivine, Fa_{18}; pyroxene, Fs_{16}. Enclave olivine composition is Fa_{18}. The meteorite is an H5 chondrite.

Sample No.: ALH85119 Location: Allan Hills
Weight (g): 20.6 Field No.: 2671
Dimensions (cm): 3 x 2.5 x 1.5
Meteorite Type: E4 Chondrite

Macroscopic Description: Roberta Score
Frothy black fusion crust totally encases ALH85119. Evaporite deposit is present underneath the fusion crust in some areas. The interior is charcoal gray with dark chondrules. This stone is very coherent! Oxidation is extensive in some areas.

Thin Section (,3) Description: Brian Mason
The section shows a compact aggregate of chondrules, chondrule fragments, and irregular clasts up to 3 mm across, together with about 25% nickel-iron in grains up to 1.5 mm across. Troilite is present in minor amounts. The section shows a directional fabric, possibly a shock effect. The silicate material is almost entirely pyroxene; a little olivine is present, usually as small grains poikilitically enclosed in pyroxene. Coarsely crystallized graphite occurs within some metal grains. Microprobe analyses show a range of pyroxene composition, $Fs_{0.3-12}$, with a mean of $Fs_{2.4}$; CaO ranges from 0.2 to 3.7%. The nickel-iron contains 0.4-0.6% Si. The meteorite is tentatively classified as an E4 chondrite.

Sample No.: ALH85151 Location: Allan Hills
Weight (g): 13.9 Field No.: 2623
Dimensions (cm): 3 x 3 x 1.5
Meteorite Type: C4 Chondrite

Macroscopic Description: Roberta Score
A small amount of dull black fusion crust remains on this stone. The exterior surface is dull brownish-gray and is heavily pitted. Chondrules and clasts show relief on the surface. One noteable clast is black with small white inclusions. The interior is medium-gray in color with white inclusions. Oxidation is extensive in some areas.

Thin Section (,3) Description: Brian Mason
The section shows numerous chondrules (up to 1.2 mm across) and chondrule fragments in a finely granular matrix. Most of the Chondrules consist of granular or porphyritic olivine; pyroxene is rare. Minor amounts of nickel-iron and sulfide are present, mainly as very small grains scattered through the matrix. Microprobe analyses show olivine compositions ranging from $Fa_{0.4}$ to Fa_{41}, with a mean of Fa_{34}. Pyroxene compositions range from Fs_6 to Fs_{30}. The meteorite is classified as a C4 chondrite.

Sample No.: ALH85155
Weight (g): 18.5
Dimensions (cm): 2.5 x 2 x 2.5
Meteorite Type: L3 Chondrite

Location: Allan Hills
Field No.: 2665

Macroscopic Description: Roberta Score
Ninety percent of this angular stone is covered with fusion crust. Medium-gray matrix with abundant inclusions make up the interior. Oxidation is minimal.

Thin Section (,3) Description: Brian Mason
Chondrules and chondrule fragments are abundant, ranging up to 1.5 mm across, and are set in a finely granular matrix. Small amounts of pale brown glass are present in the matrix and in some chondrules. Nickel-iron is present in minor amounts. Microprobe analyses show olivine ranging in composition from Fa_8 to Fa_{28}, with a mean of Fa_{21} (CV FeO is 30); pyroxene composition ranges from Fs_4 to Fs_{20}. The meteorite is an L3 chondrite (probably L3.6); it may be another member of the ALHA77011 pairing group.

Sample No.: ALH85159
Weight (g): 11.0
Dimensions (cm): 3 x 2.5 x 1
Meteorite Type: E4 Chondrite

Location: Allan Hills
Field No.: 2272

Macroscopic Description: Roberta Score
The exterior is mostly covered with extremely weathered fusion crust. Chondrules are visible in the interior black matrix. Oxidation is moderate to heavy.

Thin Section (,3) Description: Brian Mason
Chondrules are relatively abundant, but are small, ranging up to 0.7 mm across; they consist of fine-grained to coarsely granular pyroxene (rare grains of olivine may be present). The matrix consists largely of chondrule fragments and pyroxene grains, with a moderate amount of nickel-iron and sulfides. The meteorite is considerably weathered, with brown limonitic staining throughout the section. Microprobe analyses show pyroxene composition ranging from $Fs_{0.3}$ to $Fs_{1.8}$, with a mean of $Fs_{0.9}$. The nickel-iron contains 2.2% Si. The meteorite is an enstatite chondrite, and since most of the pyroxene is polysynthetically twinned clinoenstatite, it is classed E4. It closely resembles ALH84254 and some other ALH E4 chondrites, and the possibility of pairing should be considered.

Sample No.: DOM85505; DOM85506
Weight (g): 31.4; 58.8
Dimensions (cm): 3 x 2 x 2; 4.5 x 2.5 x 2.5
Meteorite Type: LL5 Chondrite with Enclave

Location: Dominion Range
Field No.: 2093; 2016

Macroscopic Description: Roberta Score
Both specimens are angular and are nearly complete stones. Cleaving DOM85505 revealed an interior which is medium gray in color that contains enclaves of whitish-gray material. Gray and white clasts are abundant. The interior of DOM85506 is less weathered than DOM85505 and has irregularly shaped white and gray clasts. The white clasts are as large as 1 cm in largest dimension.

Thin Section (DOM85505,3) Description: Brian Mason
The section shows sparse chondrules in a matrix of fine-grained olivine and pyroxene, with a little nickel-iron and sulfide. On one edge is a clast, 6 mm across, of large pyroxene grains poikilitically enclosing numerous small olivine grains. Minor weathering is indicated by brown limonitic staining around metal grains. Microprobe analyses show the following compositions: chondritic olivine Fa_{26}, pyroxene Fs_{22}; clast olivine Fa_{28}, pyroxene Fs_{23}. The meteorite is classified as an LL5 chondrite, but the large clast is an unusual feature. DOM85506 is so similar that it can certainly be paired with DOM85505.

Sample No.: EET83254
Weight (g): 7.7
Dimensions (cm): 2 x 2 x 1.5
Meteorite Type: E4 Chondrite

Location: Elephant Moraine
Field No.: 1340

Macroscopic Description: Carol Schwarz
EET83254 is an angular fragment that is very shiny and iridescent with a small patch of fusion crust remaining. The interior is dark brown with a small amount of evaporite deposit present.

Thin Section (,2) Description: Brian Mason
Chondrules and chondrule fragments are abundant, and are set in a granular groundmass of pyroxene, nickel-iron, and sulfides. The chondrules range up to 0.6 mm across (a few fragments are larger), and consist of granular or prismatic pyroxene (small olivine grains are present in a few chondrules). Brown limonitic staining pervades the section. Microprobe analyses show that most of the pyroxene is close to $MgSiO_3$ in composition, with FeO less than 1%, but a few grains show higher FeO content, up to 6.4%. The nickel-iron contains 2.6% Si. Since much of the pyroxene is polysynthetically twinned clinoenstatite, the meteorite is classed as an E4 chondrite. It is similar to EET83307 and EET83322, and the possibility of pairing should be considered.

Sample No.: EET83311
Weight (g): 15.3
Dimensions (cm): 2.5 x 2.5 x 1.5
Meteorite Type: C4 Chondrite

Location: Elephant Moraine
Field No.: 1360

Macroscopic Description: Roberta Score
Frothy fusion crust covers all of EET83311. Interior is medium to dark gray in color and has a massive texture. Glassy, linear striations were exposed when the stone was cleaved.

Thin Section (,2) Description: Brian Mason
Chondritic structure is barely discernable, the section consisting largely of finely granular olivine (grains ranging up to 0.2 mm, with a few larger), with a little plagioclase and opaques, largely magnetite (pyroxene is probably present, but was not certainly identified). Microprobe analyses gave the following compositions: olivine, Fa_{31}; plagioclase, An_{49}. The meteorite is similar to Karoonda in texture and mineral compositions, and is tentatively identified as a C4 chondrite.

Sample No.: EET83334
Weight (g): 2.5
Dimensions (cm): 1.5 x 1.5 x 1
Meteorite Type: C2 Chondrite

Location: Elephant Moraine
Field No.: 2706

Macroscopic Description: Roberta Score
A small amount of fusion crust remains on this otherwise black, massive stone.

Thin Section (,4) Description: Brian Mason
The section shows a few chondrules (up to 0.9 mm across) and numerous small mineral grains in an opaque matrix. The chondrules and mineral grains consist almost entirely of pale green weakly birefringent serpentinous material. Trace amounts of nickel-iron are present as minute grains. Microprobe analyses show serpentine of variable composition, averaging SiO_2 39.6, Al_2O_3 3.3, FeO 15.3, MgO 27.9%; some small grains of calcite and dolomite were found. The meteorite is a C2 carbonaceous chondrite; the pervasive serpentinization appears to distinguish it from other Elephant Moraine C2 chondrites.

Sample No.: EET83355 Location: Elephant Moraine
Weight (g): 66.2 Field No.: 2748
Dimensions (cm): 5.5 x 4 x 2.5
Meteorite Type: C2 Chondrite

Macroscopic Description: Roberta Score
Fusion crust covers 50% of this fragment. Areas devoid of fusion crust are polished and iridescent. White inclusions are scattered throughout the black matrix. Oxidation is present.

Thin Section (,2) Description: Brian Mason
The section shows numerous chondrules (up to 0.9 mm across) and irregular granular aggregates in a moderate amount of black opaque matrix. The matrix contains numerous small grains of nickel-iron and troilite. Most of the chondrules consist of granular olivine and olivine-pyroxene. Microprobe analyses show that much of the olivine is of forsteritic composition, but occasional iron-rich grains are present (up to Fa_{28}, mean olivine composition is Fa_6). Most of the pyroxene has composition in the range Fs_{0-1}, but ranges up to Fs_9. The meteorite is a C2 chondrite; the section resembles that of EET83226, and the possibility of pairing should be considered.

Sample No.: EET83389 Location: Elephant Moraine
Weight (g): 19.2 Field No.: 1358
Dimensions (cm): 2.5 x 2.5 x 2
Meteorite Type: C2 Chondrite

Macroscopic Description: Roberta Score
Exterior is polygonally fractured and brown in color. The clastic nature of this rock is obvious from the exterior. Interior is a dark dusty gray with many semi-rounded inclusions that range in diameter from <1 mm to 2 mm. Most of these inclusions are cream colored. This stone is not very dense.

Thin Section (,2) Description: Brian Mason
The section shows numerous chondrules and irregular granular aggregates in a translucent brown isotropic matrix. Nickel-iron is present in trace amounts as minute grains in a few chondrules and aggregates; no troilite was seen. Most olivine grains are close to the magnesian end-member in composition, but a few iron-rich ones are present; pyroxene compositions are similar. The meteorite is a C2 chondrite.

Sample No.:	EET83395	Location:	Elephant Moraine
Weight (g):	65.3	Field No.:	2893
Dimensions (cm):	4 x 3.5 x 2		
Meteorite Type:	L3 Chondrite		

Macroscopic Description: Roberta Score
Fusion crust completely covers this angular stone. The interior matrix is black and contains numerous weathered inclusions. Some metal is obvious.

Thin Section (,2) Description: Brian Mason
The section shows a closely packed mass of chondrules, chondrule fragments, and irregular granular aggregates in a small amount of interstitial dark matrix. The matrix contains a considerable amount of dispersed sulfide and a few grains of nickel-iron. Chondrules range from 0.3 to 2 mm across, and exhibit a variety of types. Microprobe analyses gave the following compositions: olivine, Fa_{6-30}, mean Fa_{17} (CV FeO = 32); pyroxene, Fs_{2-17}. The variability of olivine and pyroxene compositions indicates type 3, and the amount of metal suggests L group; the meteorite is therefore tentatively classified as an L3 chondrite. It is very similar to EET83274 in all respects, and the possibility of pairing should be considered.

Sample No.:	GRO85201	Location:	Grosvenor Mountains
Weight (g):	1400.7		
Dimensions (cm):	13 x 8 x 3.5	Field No.:	2010
Meteorite Type:	Octahedrite, probably IIIAB		

Macroscopic Description: Roy S. Clarke, Jr.
The specimen is flat and roughly the shape of a slightly curved extended hand with closed fingers and thumb. The convex surface was the anterior surface during stable oriented flight. A distinct stagnation point is present at the center of this surface from which streamers of melt flowed to a circumferential lip that separates the anterior and posterior surfaces. The anteroir surface is a dark reddish brown due to the presence of terrestrial oxides with patches of black fusion crust. The posterior surface is darker and has a uniform matte appearance. The specimen has been exposed to long terrestrial weathering, but its delicate ablation-produced markings are remarkably well preserved.

Polished Section Description: Roy S. Clarke, Jr.
A slice was removed from the narrow end of the specimen giving an area of 11 cm^2 for examination. A regular Widmanstatten pattern with band widths from 0.8 to 1.5 mm is present. Plessite areas and centers of taenite bands have a martensitic structure. Grain boundary schreibersite and occasional large rhabdites are present. Weathering has penetrated along grain boundaries into the interior. The anterior edge has a coating of intermittent terrestrial oxide generally less than 0.1 mm thick and containing remnant fusion crust in some few areas. The posterior edge is uniformly covered with a layered, lightly weathered fusion crust 1.0 to 1.5 mm thick. Interior to both edges is an $_2$ structure typical of a heat-altered zone. This $_2$ structure blends into a much coarser martensite structure that is present throughout the kamacite in the section. The meteorite is a medium octahedrite, probably a IIIAB meteorite.

Sample No.:	GRO85214; GRO85215; GRO85216; GRO85217	Location:	Grosvenor Mountains
Weight (g):	259.8; 35.2; 12.4; 33.6	Field No.:	2087; 2076; 2009; 2030; 2005; 2034
Dimensions (cm):	10 x 5.5 x 3; 3.5 x 3 x 2; 2.5 x 2.5 x 1; 3.5 x 3.5 x 1		
Meteorite Type:	L5 Chondrite with Enclave		

Macroscopic Description: Roberta Score
All of these specimens contain some fusion crust while GRO85216 is totally covered by fusion crust. All samples are moderately to heavily weathered. The exterior surfaces without fusion crust are dark brown-gray in color. GRO85214 consists of 3 fragments which fit together (all pieces have different field numbers). The interior matrix is medium gray in some areas and lighter gray in others. All specimens have a high inclusion to matrix ratio. One noteable inclusion seen in GRO85214,3 is 2 x 2 cm in dimension and has a thick black rim surrounding it.

Thin Section (GRO85214,7) Description: Brian Mason
Chondrules are fairly abundant, but their margins are poorly defined and tend to merge with the granular groundmass, which consists of olivine and pyroxene with minor amounts of nickel-iron and troilite. On one edge is a rounded enclave (or giant chondrule), 3 mm across, consisting of fine-grained pyroxene with a feathery texture and some colorless intergranular glass. Microprobe analyses give the following compositions: olivine, Fa_{24}, pyroxene, Fs_{21}; enclave pyroxene, Fs_{17-19}. The meteorite is an L5 chondrite, but the enclave appears out of equilibrium with the chondrite. As noted in the field, GRO85215, GRO85216, and GRO85217 can confidently be paired with GRO85214.

Sample No.:	LEW85369	Location:	Lewis Cliff
Weight (g):	6.3	Field No.:	2013
Dimensions (cm):	1.5 x 1.5 x 0.8		
Meteorite Type:	Iron		

Macroscopic Description: Roy S. Clarke, Jr.
This specimen is irregularly shaped, pitted, weathered, and covered with a reddish brown coating of secondary oxides.

Polished Section Description: Roy S. Clarke, Jr.
A median section through the individual provided an area of 0.8 cm^2 for examination. The surface comprises a number of roughly equidimensional metal grains in the 1 to 3 mm size range. Two of these grains are martensite, containing subgrains of martensite bordered by thin, irregular bands of kamacite. The kamacite grains appear to be single crystal kamacite free of inclusions. The kamacite grains react differentially to nital etchant, some becoming very dark on brief exposure. Terrestrial weathering has penetrated into the center of the sample along major kamacite/kamacite grain boundaries and along cleavages. The external surface of the slice is bordered for the most part by about 0.1 mm of terrestrial weathering products. Small areas of remnant fusion crust remain within and under the weathering products. Interior to this and around most of the exterior surface is a heat-altered zone, up to 1.5 mm thick at one point. The thickest areas of heat-altered zone are at opposite ends of the section along its long axis, suggesting that this may have been an oriented individual during atmospheric passage.

Sample No.: LEW85397 Location: Lewis Cliff
Weight (g): 57.3 Field No.: 2870
Dimensions (cm): 4 x 3 x 1.5
Meteorite Type: L6 Chondrite with Achondritic Clast

Macroscopic Description: Cecilia Satterwhite
Oxidation haloes are present in the black/brown fusion crust which mostly covers LEW85397. Oxidation has obscured any features which may be present in the red-brown interior.

Thin Section (,3) Description: Brian Mason
The section shows an aggregate of clasts, up to 10 mm across; most of them appear to be fragments of chondrites, but one is achondritic, an equigranular (average grain size approx. 0.1 mm) aggregate of olivine and orthopyroxene, with a little interstitial glass. Minor amounts of nickel-iron and troilite are present, sometimes as large areas (up to 3 mm across) which appear to be the result of remelting and accretion, possibly a shock effect. There is a small amount of transparent granular matrix, mostly isotropic. In the chondritic clasts, olivine composition is Fa_{19-22}, pyroxene Fs_{17-20}; some maskelynite was analysed, with CaO content equivalent to An_9, but with diminished Na (Na_2O 3.2-5.7%). The achondritic clast has the following mineral compositions: olivine, Fa_{19-27}, mean Fa_{21}; pyroxene, Fs_{21-26}, Wo_{2-5}. This meteorite is a complex breccia; much of the material appears to have L6 composition.

Sample No.: LEW85420 Location: Lewis Cliff
Weight (g): 12.4 Field No.: 3148
Dimensions (cm): 2.5 x 2 x 1.5
Meteorite Type: Brecciated L6 Chondrite

Macroscopic Description: Rene Martinez
Smooth fusion crust covers all but one fracture surface. The interior is dark gray with few light colored inclusions present.

Thin Section (,3) Description: Brian Mason
A few chondrule fragments are present, but most of the section consists of a finely granular aggregate of olivine and pyroxene; some of the pyroxene is polysynthetically twinned clinobronzite. Some fragments of barred olivine chondrules have transparent brown glass bars. Minor amounts of nickel-iron and troilite are present. Olivine and pyroxene are essentially uniform in composition: olivine, Fa_{24}; pyroxene, Fs_{20}. A little plagioclase, An_{10}, was analysed. The meteorite is tentatively classified as an intensely brecciated L6 chondrite, containing fragments of L3-5 chondrites.

Sample No.: LEW85355; LEW85435 Location: Lewis Cliff
Weight (g): 5.5; 20.7 Field No.: 2460; 3116
Dimensions (cm): 2.5 x 2 x 1; 4 x 2 x 1.5
Meteorite Type: H5 Chondrite; Severly Shocked

Macroscopic Description: Rene Martinez and Cecilia Satterwhite
These specimens are mostly covered by frothy and heavily oxidized fusion crust. The interior of both specimens are red-brown and no features are visible.

Thin Section (LEW86316,3 LEW85355,3; LEW85435,3) Description: Brian Mason
Sections of these specimens are very similar and show unique features in common, indicating that they are probably pieces of a single meteorite and should be paired. The compositions of olivine (Fa_{17}) and pyroxene (Fs_{15}) are those of an H chondrite, but chondritic structure is barely visible in any of the sections. The minerals form fine-grained (up to 0.2 mm) aggregates, separated by veinlets, several mm wide, of brown-gray devitrified glass containing numerous mineral grains. The texture suggests a severe shock event that partly remelted the meteorite. LEW85316 was classed as an H5 chondrite (Antarctic Meteorite Newsletter, Vol. 10, No. 1, 1987) and is texturally similar to LEW85355 and LEW85435.

Sample No.: LEW86001 Location: Lewis Cliff
Weight (g): 290.6 Field No.: 4966
Dimensions (cm): 8.5 x 5 x 4
Meteorite Type: Eucrite

Macroscopic Description: Roberta Score
Dull black fusion crust covers 80% of LEW86001. Large vugs, typical of all Antarctic eucrites, are abundant. Exterior surfaces without fusion crust have a dirty gray color and show some small inclusions. Some oxidation is present. The interior is lighter gray in color and has areas of heavy oxidation. Numerous clasts some as large as 0.5 cm are present.

Thin Section (,6) Description: Brian Mason
The section shows a groundmass of comminuted pyroxene and plagioclase (grains up to 0.5 mm), with numerous clasts up to 3 mm across. The clasts consist of pyroxene and plagioclase, with a variety of textures from fine-grained granular to ophitic to gabbroic. A small amount of opaques is present. Microprobe analyses show pyroxene compositions clustered around Wo_2Fs_{56} but ranging to $Wo_{44}Fs_{22}$, with fairly uniform En content. Plagioclase compositions are An_{76-88}. The meteorite is a eucrite.

Sample No.: LEW86002
Weight (g): 32.6
Dimensions (cm): 5 x 2 x 2.5
Meteorite Type: Eucrite (Unbrecciated)

Location: Lewis Cliff
Field No.: 2361

Macroscopic Description: Roberta Score
This oblong shaped basaltic achondrite is mostly covered with thin black fusion crust. Equal parts of mafic and non-mafic material makes up the interior. No large or distinct inclusions were exposed. Some oxidation is present.

Thin Section (,5) Description: Brian Mason
The section shows an ophitic intergrowth of pyroxene and plagioclase (plagioclase laths up to 0.7 mm long). Pyroxene compositions range from Wo_3Fs_{61} to $Wo_{37}Fs_{31}$, with fairly uniform En content. Plagioclase composition is An_{90}. The meteorite is an unbrecciated eucrite.

Sample No.: LEW86003
Weight (g): 1.6
Dimensions (cm): 1.5 x 1.0 x 0.5
Meteorite Type: Eucrite (Brecciated)

Location: Lewis Cliff
Field No.: 3426

Macroscopic Description: Roberta Score
LEW86003 is mostly covered with dull black fusion crust. Ninety percent of the interior has a basaltic texture; is light gray in color with minor black inclusions. Ten percent of the interior is jet black. This area contains minor inclusions and is more oxidized than the lighter material. There is a sharp contact between these two areas.

Thin Section (,3) Description: Brian Mason
Most of the section is an ophitic intergrowth of pyroxene and plagioclase, the plagioclase laths up to 0.9 mm long; one end is sharply bounded by an area of subophitic to gabbroic clasts, up to 1.8 mm across, in a dark brown glassy matrix. Mineral compositions are similar throughout. Pyroxene compositions range from Wo_2Fs_{64} to $Wo_{43}Fs_{27}$, with fairly uniform En contents; plagioclase compositions are An_{87-91}. The meteorite is a brecciated eucrite.

Sample No.:	LEW86004; LEW86005; LEW86007; LEW86008; LEW86009	Location:	Lewis Cliff
		Field No.:	3486; 3278; 3214; 3239; 3210
Weight (g):	2.1; 4.7; 1.6; 5.6; 6.5		
Dimensions (cm):	1.5 x 1.5 x 1.0; 2 x 1.5 x 1.5; 1.5 x 1.5 x 0.5; 2 x 1.5 x 1; 2 x 1.5 x 1.5		
Meteorite Type:	C2 Chondrite		

Macroscopic Description: Roberta Score

Some fusion crust remains on each of these otherwise brownish and black stones. White evaporite deposit speckles the fusion crust-free exterior surfaces of LEW86005 and LEW86007. Some of the deposits have a metallic look to them. The brownish weathering rind extends 1 to 2 mm into the interior of LEW86004, LEW86008 and LEW86009. The interior matrix is jet black and contains abundant rounded and irregular shaped inclusions. The largest inclusion exposed is 2 mm in diameter.

Thin Section (LEW86004,3; LEW86005,2; LEW86007,2; LEW86008,3; LEW86009,4) Description: Brian Mason

These specimens are so similar that a single description is adequate. The sections show numerous small colorless grains, mainly olivine, irregular aggregates, and rare chondrules in an opaque to translucent brown matrix. Microprobe analyses of the olivines show a composition range of Fa_{0-54}, with a marked peak at Fa_{0-1}. A few grains of clinoenstatite were analysed, with composition range Fs_{0-7}. The meteorites are C2 chondrites, and the possibility of pairing should be considered.

Sample No.:	LEW86006	Location:	Lewis Cliff
Weight (g):	0.8	Field No.:	3478
Dimensions (cm):	1.0 x 0.5 x 0.5		
Meteorite Type:	C3V Chondrite		

Macroscopic Description: Roberta Score

Forty percent of LEW86006 is covered by dull black fusion crust. Dark gray matrix with some irregularly shaped white inclusions makes up the interior of this stone. Oxidation is apparent.

Thin Section (,3) Description: Brian Mason

This very small section (5 x 3 mm) shows several chondrules, up to 1.5 mm across, and some irregular granular aggregates in a very fine-grained translucent brown matrix. The chondrules consist mainly of olivine, some with polysynthetically twinned clinopyroxene. Fusion crust is present along one edge. Microprobe analyses give olivine compositions ranging from Fa_0 to Fa_{27}, with a mean of Fa_6; pyroxene compositions range from Fs_0 to Fs_5. The matrix appears to consist largely of fine-grained iron-rich olivine (Fa_{40-50}). The meteorite is tentatively identified as a C3V chondrite.

Sample No.: LEW86010 Location: Lewis Cliff
Weight (g): 6.9 Field No.: 4015
Dimensions (cm): 1.5 x 1.5 x 1.5
Meteorite Type: Achondrite (unique)

Macroscopic Description: Roberta Score
Greenish-brown crystals show relief on the exterior of this polished black specimen. Flow-like features are etched in the exterior. The interior is made-up of black shiny euhedral and anhedral platy crystals, clear anhedral crystals and green platy minerals. Oxidation is present.

Thin Section (,5) Description: Brian Mason
The section shows a granular aggregate of subequal amounts of plagioclase, pyroxene, and olivine, with a trace of opaques; plagioclase grains are up to 2.4 mm across, whereas the pyroxene and olivine grains are somewhat smaller, 0.6-1.2 mm. The pyroxene has a reddish-purple color, and is weakly pleochroic. The olivine shows widely spaced narrow (0.01 mm) exsolution lamellae (probably of kirschsteinite, $Ca(Fe,Mg)SiO_4$). Microprobe analyses give the following compositions: plagioclase, An_{100} (K_2O, Na_2O both less than 0.1%); olivine, Fa_{63}, with 1.5-2.6% CaO; the pyroxene is a titanian fassaite, $Wo_{56}Fs_{19}$, with 10.4% Al_2O_3 and 2.4% TiO_2. One grain of kirschsteinite, $(Ca_{.92}Fe_{.86}Mg_{.22})$ SiO_4, a grain of hercynite, $(Fe_{.78}Mg_{.22})Al_2O_4$, and a grain of merrillite were analysed. The meteorite is a unique achondrite, but the mineral compositions indicate a close relationship to Angra dos Reis.

Sample No.: LEW86018 Location: Lewis Cliff
Weight (g): 502.0 Field No.: 4004
Dimensions (cm): 10 x 6 x 6
Meteorite Type: L3 Chondrite

Macroscopic Description: Roberta Score
Dull black fusion crust covers 60% of this unequilibrated chondrite. Areas devoid of fusion crust are reddish-brown. The clastic nature of the stone is apparent even though the interior is fairly weathered. Matrix is brown in color and contains numerous inclusions. The largest inclusion is 5 mm long. A minute amount of evaporite deposit exists immediately under the fusion crust.

Thin Section (,6) Description: Brian Mason
The section shows a close-packed mass of chondrules, chondrule fragments, and irregular granular aggregates in a small amount of dark fine-grained matrix. Chondrules range up to 3.2 mm across, and show a diversity of type, the commonest being granular and porphyritic olivine and olivine-pyroxene. Brown limonitic staining pervades the section. Microprobe analyses show olivine and pyroxene with variable compositions: olivine, $Fa_{0.7-32}$, with a mean of Fa_{15} (CV FeO is 44); pyroxene, Fs_{2-9}. The meteorite is an L3 chondrite (estimated L3.5).

Sample No.:	QUE86900	Location:	Queen Alexandra Range
Weight (g):	1532.3	Field No.:	3050
Dimensions (cm):	13 x 10 x 6.5		
Meteorite Type:	Mesosiderite		

Macroscopic Description: Roberta Score

QUE86900 has an overall color of red-brown. Dull black fusion crust appears as isolated blebs and covers about 10% of the meteorite. Large green platy pyroxene crystals are abundant, the largest is 1.5 cm in the longest dimension. Shallow regmaglypts are present on most exterior surfaces. One exterior fracture surface has blebs of fusion crust on it. Cleaving the specimen, which was easily accomplished, revealed an interior that has numerous platy inclusions and dark rounded inclusions in a highly weathered, pliable red-brown metal-rich matrix.

Thin Section (,5) Description: Brian Mason

The section shows plagioclase and pyroxene clasts, up to 1.5 mm across, in an opaque matrix of nickel-iron and troilite (the nickel-iron extensively weathered to limonite). Most of the pyroxene is hypersthene, but some pigeonite is present; composition ranges are Wo_{1-11}, En_{31-78}, Fs_{21-64}, with a mean of Wo_3Fs_{33}. Most plagioclase compositions are in the range An_{90-96}, but a few more sodic grains were analysed. The meteorite is a mesosiderite.